IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-23. (Canceled).

24. (New) An ARQ re-transmission method in a wireless communication system wherein data packets are transmitted from a transmitter to a receiver using a first transmission and at least a second transmission based on a repeat request, the method comprising:

modulating data packets at the transmitter using a first modulation scheme to obtain first data symbols;

performing the first transmission by transmitting the first data symbols over a first diversity branch to the receiver;

modulating said data packets at the transmitter using a second modulation scheme to obtain second data symbols;

performing the second transmission by transmitting the second data symbols over a second diversity branch to the receiver;

demodulating the received first and second data symbols at the receiver using the first and second modulation schemes respectively; and

3

diversity combining the demodulated data received over the first and second diversity branches.

25. (New) The method according to claim 24, wherein the data packets comprise a plurality of data bits which are encoded using a forward error correction (FEC) scheme prior to modulation.

26. (New) The method according to claim 25, wherein the FEC encoding scheme is a Turbo coding scheme.

27. (New) The method according to claim 24, wherein the first and second modulation schemes are higher order modulation schemes and the data bits mapped onto the data symbols have different bit reliabilities depending on the chosen mapping.

28. (New) The method according to claim 24, wherein the modulation schemes are 16 QAM and a number of log2 (M) modulation schemes are used.

29. (New) The method according to claim 24, wherein the modulation schemes for the first and second diversity branches are selected such that after combining the bits of the data

4

packets the differences in magnitude among the combined bit reliabilities are reduced.

30.   (New)   The method according to claim 24, wherein the data for transmission is modulated using a single redundancy version scheme with an identical data bit sequence.

31.   (New)   The method according to claim 24, wherein the data for transmission is modulated using a multiple redundancy version scheme of partly identical bits.

32.   (New)   The method according to claim 24, wherein the first and second modulation schemes are pre-stored in a memory table.

33.   (New)   The method according to claim 24, wherein the first and second modulation schemes are signaled to the receiver.

34.   (New)   The method according to claim 24, wherein the properties of the first and second modulation schemes are obtained by one of:

    (a) interleaving the positions of the bits mapped onto the data symbols, and

5

(b) inverting the bit values of the bits mapped onto the data symbols.

35. (New) The method according to claim 34, wherein the interleaving is performed with symbols resulting in an intra-symbol interleaving.

36. (New) The method according to claim 24 wherein the data is transmitted with a plurality of redundancy versions and the transmitted bits comprise systematic and parity bits and the systematic bits are included in each redundancy version.

37. (New) The method according to claim 37, wherein the combined mean bit reliabilities for the systematic bits are higher than that of the parity bits.

38. (New) The method according to claim 24, wherein the first transmission comprises using the first modulation scheme and a third modulation scheme and transmitting the data modulated with the first and third modulation schemes over the first diversity branch and a third diversity branch.

6

39.   (New)   The method according to claim 24, wherein the second transmission comprises using the second modulation scheme and a fourth modulation scheme and transmitting the data modulated with the second and fourth modulation schemes over the second diversity branch and a fourth diversity branch.

40.   (New)   A transmitter for ARQ re-transmission of data in a wireless communication system wherein data packets are transmitted to a receiver using a first transmission and at least a second transmission based on a repeat request received from a receiver, the transmitter comprising:

a mapping unit that modulates data packets using a first modulation scheme to obtain first data symbols and modulates said data packets using a second modulation scheme to obtain second data symbols; and

a transmission unit that performs the first transmission by transmitting the first data symbols using a first diversity branch and performs the second transmission by transmitting the second data symbols using a second diversity branch.

41.   (New)   The transmitter according to claim 40, further comprising a table component that pre-stores the first and second modulation schemes.

7

42. (New) The transmitter according to claim 40, further comprising an interleaver or inverter to obtain different modulation scheme.

43. (New) The transmitter according to claim 40, further comprising a forward error correction (FEC) encoder that encodes the data prior to modulation.

44. (New) A receiver for an ARQ re-transmission method as part of a wireless communication system, the receiver comprising:

a receiving unit that receives first and second data symbols respectively modulated using first and second modulation schemes and received over first and second diversity branches;

a demapping unit that demodulates the received first and second data symbols using the first and second modulation schemes respectively; and

a combining unit that diversity combines the demodulated data.

45. (New) The receiver according to claim 44, further comprising a memory that stores received data prior to combining same.

8

46.   (New)   The receiver according to claim 44, further comprising a forward error correction (FEC) decoder that decodes the combined first and second data packets after diversity combining.

47.   (New)   The receiver according to claim 45, further comprising a forward error correction (FEC) decoder that decodes the combined first and second data packets after diversity combining.

9